6. **ENSURE** estimates are derived from empirical data extracted from normal conditions.

Empirical Data

- Originating or based upon experience and observation
- Capable of being verified or disproved by experience or observation

Normal Conditions

- Conforming to the standard or the common type; usual; not abnormal; regular; natural
- A form or state of being regarded as the norm, or standard

Empirical Data

- OBO History (Experience)
  - Historical Data
  - Multi-year program and project data
- Costs (Observation)
  - Program
    - NEC site acquisition
    - NEC design and construction
  - Project
    - Global industry data sources
    - Initial Planning Survey
    - International Project Risk Assessment
    - Site appraisals; market analysis

Normal Conditions

- Normal does not necessarily equal favorable or stable
- Successful estimating depends upon understanding the common, regular conditions i.e., the normal conditions prevailing
- Estimates must assume "normal" conditions, which may include
  - Logistical problems
  - Local bureaucratic requirements to construction
  - Intermittent utility services
  - Internal or international conflicts

OBO Estimates

- Preliminary site
- Long Range Overseas Buildings Plan (LROBP)
- Independent appraisals
- Reconciled Estimate of Value (REV)
- Site Maintenance and Development Plan (SMDP)
- President's Budget
- Detail project planning phase (two estimates)
- Independent Government Estimate (IGE)

Real Estate Performance Metric

Ratio of aggregate price paid for properties purchased to aggregate Reconciled Estimate of Value for those properties (Goal: Less than 100%)

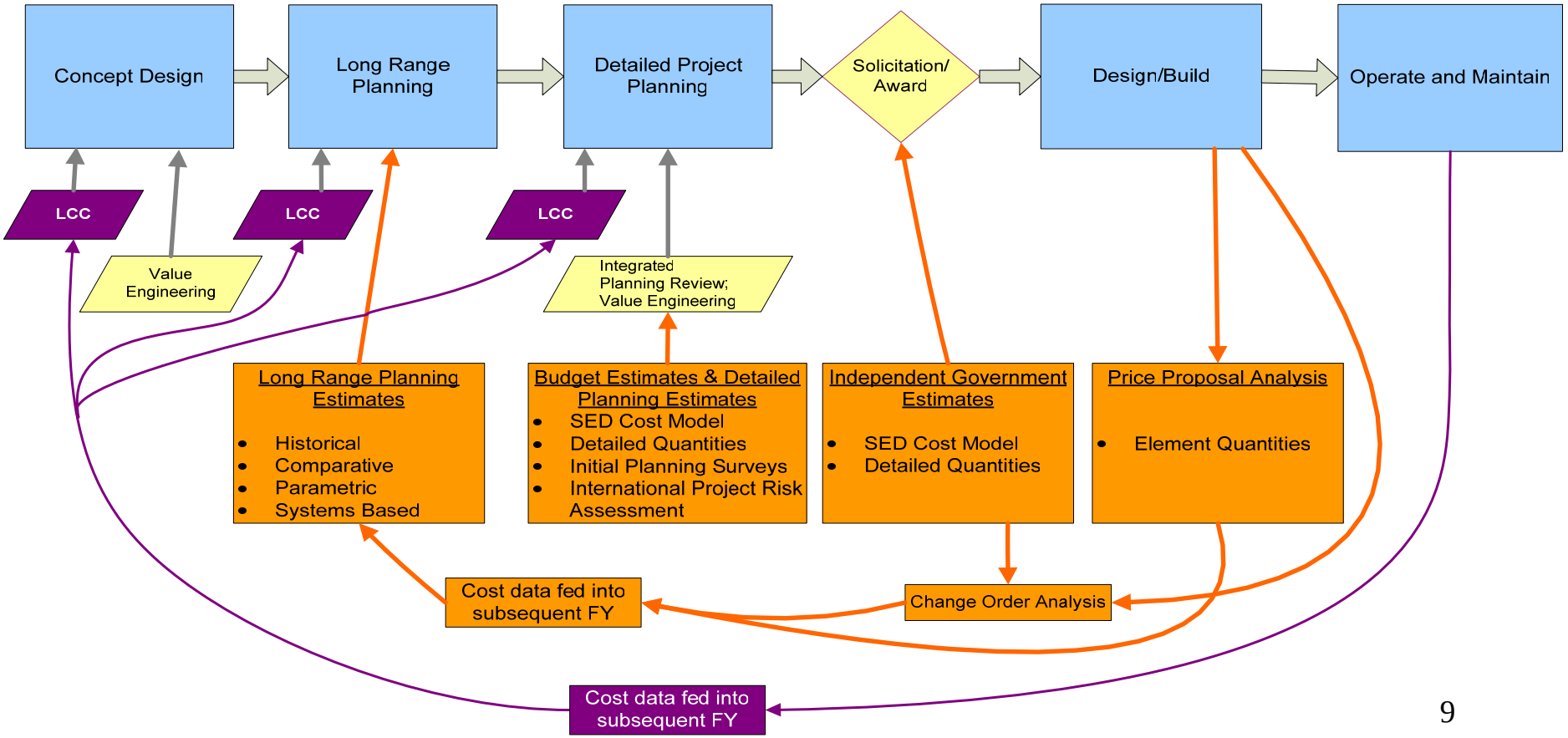
Cost Management Performance Metric

	OBO Standards	AACE Standards
Standard	CMD Standard 5.2.i.a Definitive Estimate -10/+10%	ANSI Standard Z94.0 Definitive Estimate -5/+15%
Level of Project Definition	SED Documents </=35%	30 - 70 %
Purpose of Estimate	IGE/Proposal Price	Control or bid/tender
Estimating Method	Modeled Detail Items and Unit Prices	Detailed Unit Cost and Detailed Take-off

Challenges

- Data normalization in foreign locations and international markets
- Maintenance and replacement estimates
- Energy cost estimates
- Short-term extreme price volatility
- Variable and unpredictable local conditions
- Understanding local resources and global risks

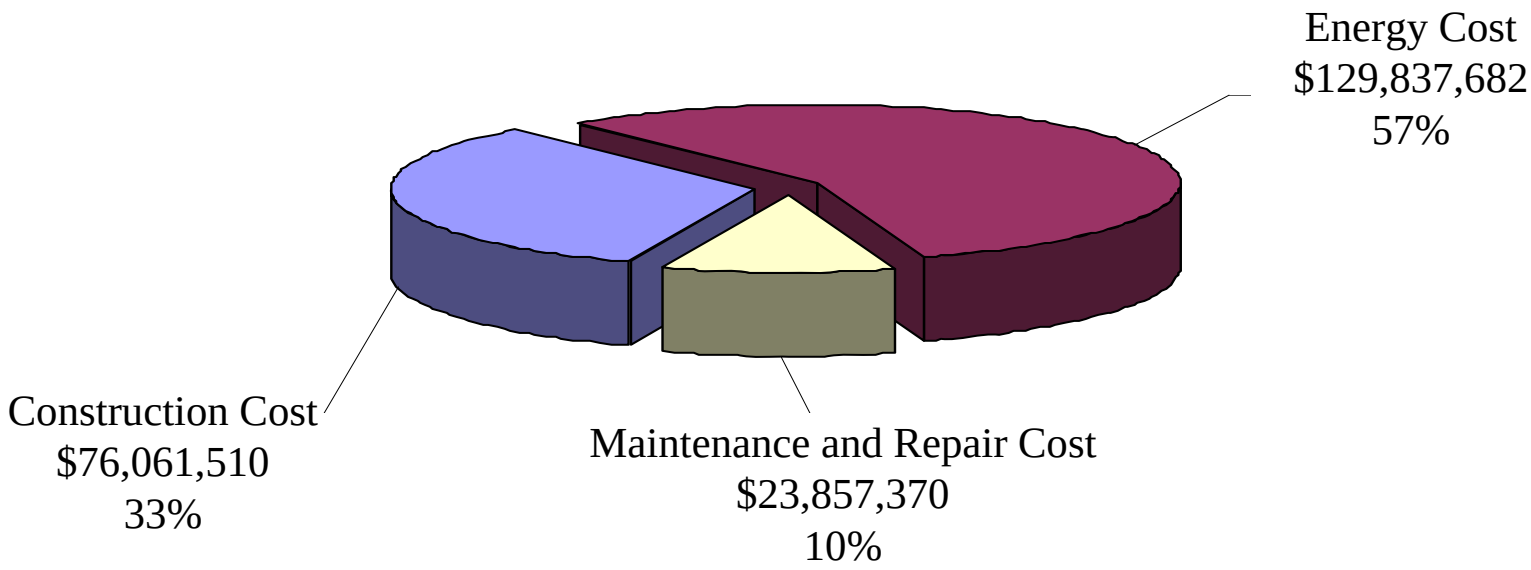
SED Projects – Cost Estimating Process with Life Cycle Costing



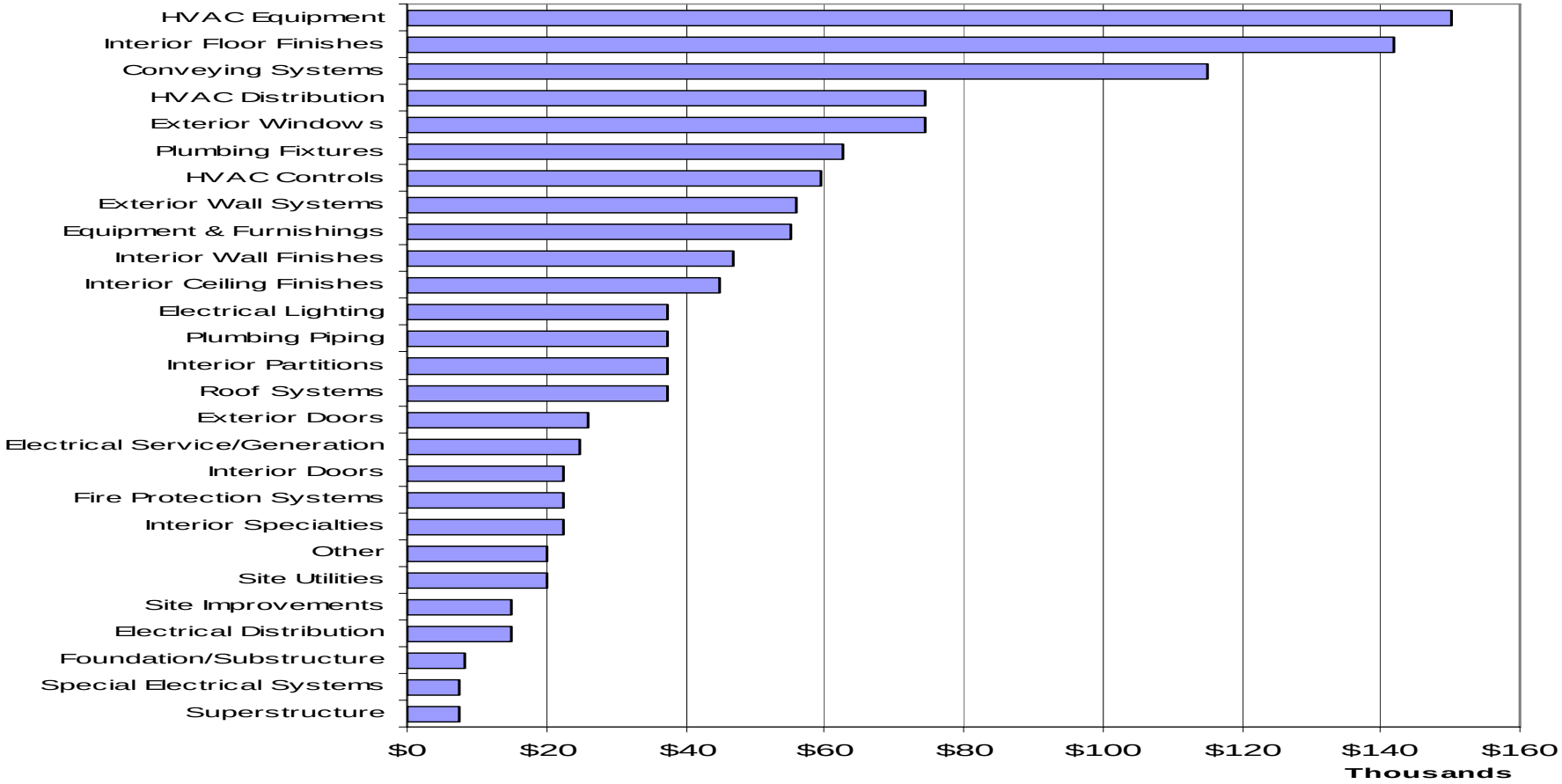
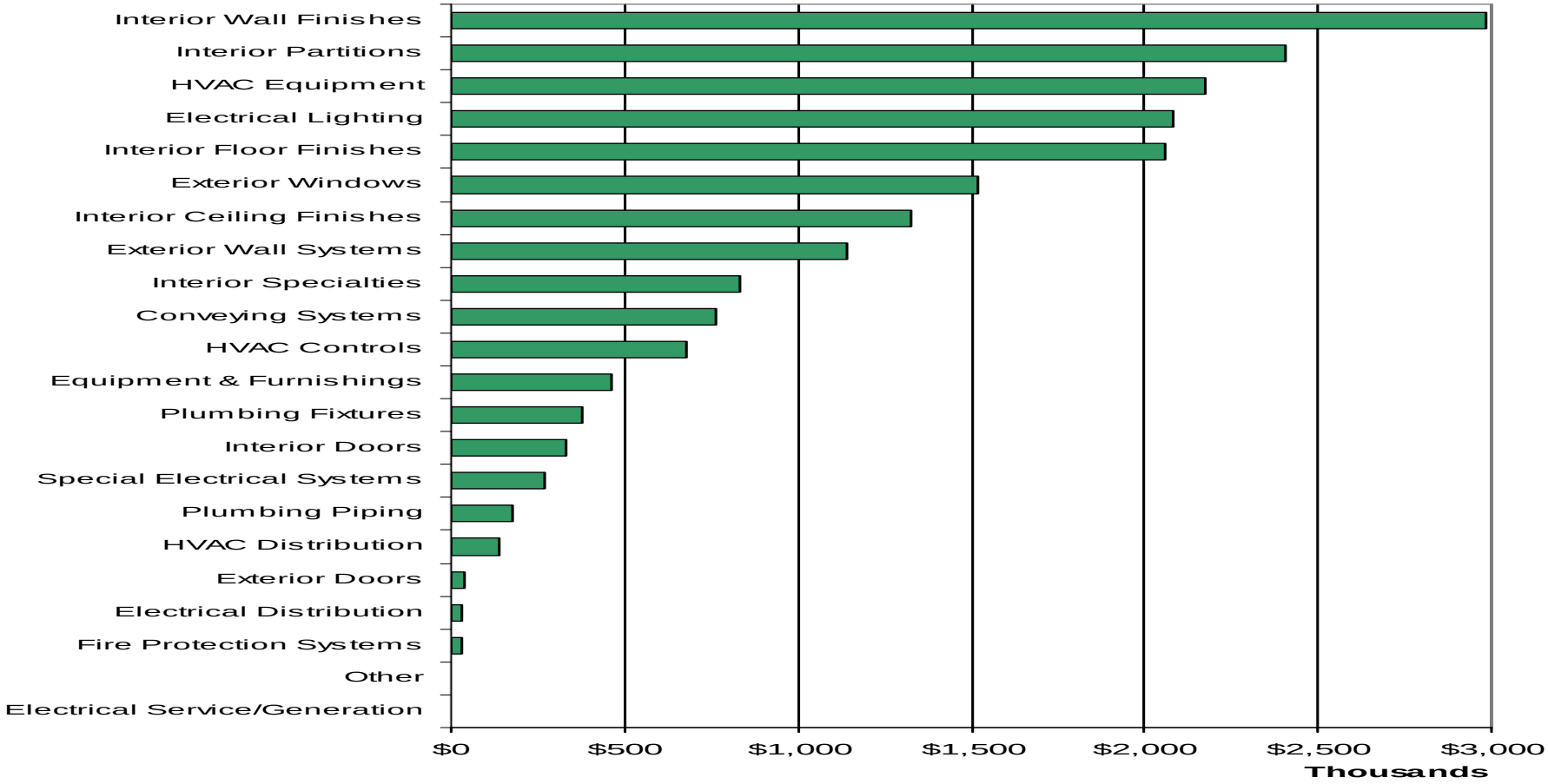
OBO Cost Estimating Enhancements

- Implement life cycle costing at concept design, long range planning, and detailed project planning phases
- Collect maintenance and repair data including energy costs and feed into subsequent year planning

SED Project Life Cycle Costing Model



Maintenance & Repair Costs – North Terminal



Construction Costs – North Terminal